AUTHORS: Valitov, R. A., Kukush, V. D., Orlov, V. G.

TITLE: Experiment on direct conversion of the energy of an electro-
magnetic superhigh-frequency field into kinetic energy

TEXT: P. N. Lebedev was the first to demonstrate that the pressure of
light (energy of an electromagnetic field) can be converted into
potential energy (Izbrannyye proizvedeniya. Pod redaktsii A. K.
Timiryazeva, Izd. tekhniko-teoreticheskoy literaturi, 1949). An attempt
has now been made to convert the energy of a superhigh-frequency field
into kinetic energy by utilizing the pondermotive forces acting upon a
well conducting plate placed across a waveguide. For a circular traveling
waveguide, in which a test specimen may move in a circle, the following
equation of motion of the specimen is obtained:

$$I\frac{d^2\alpha}{dt^2} + A\frac{d\alpha}{dt} + M_{fr} = M_p,$$ where I is the moment of inertia of the moving

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Experiment on direct conversion...

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B104/B112

system, α the angle of rotation, A a proportionality factor relating the moment produced by the aerodynamic resistance to the angular velocity, M_{fr} the moment of frictional forces, and M_p the moment of pondermotive forces. With the solutions of this system the expected speeds of a real system are estimated. $M_p = 35 \cdot 10^{-3}$ dyne·cm is obtained for a power input of 40 w, an amplification factor of the traveling wave resonator of $N^2 = 10$, a reflection factor $|Q| = 0.5$ of the specimen, a λ/λ_w ratio of 0.75 (λ is the wavelength in free space and λ_w that in the waveguide), and a mean radius of 3.5 cm of the circular waveguide. $M_{fr} = 8.0 \cdot 10^{-5}$ dyne·cm is obtained for a coefficient of friction of 0.13 and a mass of the moving system of 50 mg. A is estimated by an empirical formula as being 0.245 dyne·cm·sec/rad. Thus, $\omega = 142 \cdot 10^{-3}$ rad/sec (n = 1.36 rpm). A device used for checking these results is described. It consists of a magnetron generator (1) (Fig. 1), an attenuator (2), a pondermotive wattmeter (3), a traveling wave resonator (4) with a moving system, a directional coupler (5), a detection section (6), and a load (7). The

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Experiment on direct conversion...

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moving system is a centrally supported pivoting arm with metal disks at the end. With a power input of 40 w and an amplification factor of 3, the disks placed at a distance equivalent to five half-wave lengths had a period of 47 sec. The acceleration time of the system was 10 sec. The period could be reduced to 15 sec using filaments instead of disks. The low efficiency of energy conversion (about $10^{-9}\%$) is attributed to losses on the waveguide walls. V. G. Mikhaylik participated in the experiments. There are 4 figures and 6 references: 4 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: A. L. Cullen, Proc. IEE, 99, IV, 45 - 50, 1952; F. I. Tischler. IRE, 5, 51, 1957.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. A. Gor'kogo (Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: December 12, 1960

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ACCESSION NR: AR3000176   S/0274/63/000/004/A067/A068

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 4A427

AUTHOR: Kukush, V. D.; Mikhaylik, V. T.; Orlov, V. G.

TITLE: Increasing the sensitivity of a ponderomotive wattmeter by
means of a waveguide circuit of a traveling-wave resonator

CITED SOURCE: Uch. zap. Khar'kovsk. un.-t. Tr. Radiofiz. fak., v. 121,
no. 5, 1962, 126-138

TOPIC TAGS: ponderomotive PIM-10 Wattmeter; traveling-wave resonator;
sensitivity increase

TRANSLATION: The wattmeter is included in the loop of traveling-wave
resonator (R) connected with the principal channel over which the metered
supershighfrequency power is transmitted. Maximum increase of sensiti-
vity depends only on losses in R, and can be made sufficiently great.

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ACCESSION NR: AR3000176

However, the presence of loss-free inhomogeneity in R, consisting of the movable portion of the wattmeter, disrupts the required phase correlations and lowers the gained increase in sensitivity. The experiments were conducted in the 3 cm range, using: ponderomotive PIM-10 wattmeter; adjustable trombone-type phase inverter, included in R for its tuning; a directional coupler, with transient attenuation of 5.5-8.9 decibels and directivity of 15-20 decibels, constituting a part of R. Maximum increase of sensitivity was 3.6 times. It is believed that sensitivity increase can be raised to 10 times. R. M.

DATE ACQ: 16May63   ENCL: 00   SUB CODE: 00

Card 2/2

VALITOV, R.A.; KUKUSH, V.D.; ORLOV,V.G.

Ponderomotive power meter. Izm.tekh. no.7:32-37 J1 '62. (MIRA 15:6)
(Frequency measurements)

ACCESSION NR: AR4023751   S/0274/64/000/001/A056/A056

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 1A357

AUTHOR: Orlov, V. G.; Kukush, V. D.

TITLE: Ponderomotive forces acting on a body in a waveguide

CITED SOURCE: Uch. zap. Khar'kovsk. un-t. v. 132, 1962, Tr. Radio-
fiz. fak, v. 7, 112-121

TOPIC TAGS: ponderomotive force, waveguide, Helmholz energy method,
network theory, normalized susceptance, reflection coefficient,
standing wave ratio

TRANSLATION: The ponderomotive forces acting on a well conducting
body placed in a waveguide with an unmatched load are investigated
theoretically and experimentally. The Helmholz energy method along
with network-theory formulas are used to calculate the resultant

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ACCESSION NR: AR4023751

force acting on a plate mounted transversely to a rectangular wave-
guide operating in the H_{10} mode. The magnitude of the force depends
not only on the incident power and on the normalized susceptance in-
troduced by the body in the waveguide, but also on the reflection co-
efficient of the load and on the distance between the body and the
load. For a definite distance and a short-circuited load, the re-
sultant force can reverse sign. The appearance of an attractive
force is due to the accumulation of energy because of multiple re-
flections between the body and the load, so that the amplitude of
the wave which propagates from the load in the resonator turns out
to be many times larger than the amplitude of the waves propagating
from the generator. Experimental investigations of the dependence
of the force on the length of the line between the disc and the load
for fixed load SWR and disc susceptances were made with a metallic
disc 0.02 mm thick at a frequency 9175 Mc. The experimental data
agreed qualitatively and quantitatively with the theoretical results.
The data obtained can be used for the development of new measuring

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ACCESSION NR: AR4023751

instruments based on the ponderomotive principle.   Bibliography, 4
titles.   N. B.

DATE ACQ: 03Mar64   SUB CODE: GE, CO   ENCL: 00

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S/0274/64/000/001/A077/A078

ACCESSION NR: AR4023764

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 1A506

AUTHOR: Valitov, R. A.; Kukush, V. D.; Orlov, V. G.

TITLE: Ponderomotive power measuring instrument

CITED SOURCE: Uch. zap. Khar'kovsk. un-t, v. 132, 1962, Tr. Radio-fiz. fak., v. 7, 176-190

TOPIC TAGS: ponderomotive power meter, ponderomotive wattmeter, electric wattmeter errors, mechanical wattmeter errors, capacitive susceptance, microwave wattmeter

TRANSLATION: Two silver rectangular plates spaced $\lambda_b/4$ apart are glued to a rigid quartz rod in a vertical waveguide section. A mirror is glued to the same rod. The rotation angle is indicated by a light beam reflected from the mirror onto a scale. The calibra-

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ACCESSION NR: AR4023764

tion of the ponderomotive wattmeter is by two means: electric and mechanical. The electric calibration coefficient K_e determines the connection between the power and the rotation angle, and depends on the frequency:

$$K_e \sim [1 - (\lambda_0/\lambda_{cr})^2]^{1/2}.$$

In the case of mechanical calibration, one determines experimentally the per-unit torque of the suspension filament K_m:

$$P = \frac{K_m}{K_e}\Delta\theta.$$

To compensate for the capacitive susceptance of the plates, inductive posts were placed in the waveguide. The VSWR at $\theta = 45°$, in the 3.1--3.3 cm range, is then ≤ 1.12. The main error of the ponderomotive wattmeter is determined by the calibration error and by the

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ACCESSION NR: AR4023764

angle-measurement error. Theoretically $(\Delta P/P)_{max}$ = 3.4%. A com-
parison with a precision calorimetric instrument at 9380 Mc at a
VSWR equal to 1.05 yielded $\Delta P/P$ = 1.2%. The readings of several
wattmeters differed by $\leq$ 0.5%. V. R.

DATE ACQ: 03Mar64   SUB CODE: GE, SD   ENCL: 00

Card 3/3

L 34414-66

ACC NR: AT6022229   SOURCE CODE: UR/0000/66/000/000/0007/0013

AUTHOR: Kukush, V. D.; Ovchinnikov, I. K.; Tsar, Ye. P.; Zhilkov,
V. S.; Pasechnik, V. F.; Sobol', N. K.; Volkov, V. N.

ORG: none

TITLE: Device for measuring deviations in the power level

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio,
22d, 1966. Sektsiya radioizmereniy. Doklady. Moscow, 1966, 7-13

TOPIC TAGS: power meter, electric measuring measurement, generator

ABSTRACT: A device for measuring the output power of uhf generators is
described. The device operates on the principle of a balanced static
calorimeter used for precise power measurements in the centimeter and
millimeter ranges. The system incorporates a balanced static calorim-
eter and a measuring block. The balanced calorimeter consists of two
identical coaxial loads, i.e., an hf load and a compensated load. D-c
heaters are incorporated directly in the loads. The measuring block
consists of three basic sections: a d-c amplifier, a measuring circuit
and stabilized power supply sources. The following data were obtained
in experiments with the device which characterize its efficiency:
voltage standing wave ratio of the terminal section is practically

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L. 34853-66

ACC NR: AP6021790

transformers have three terminals (two end terminals and a center tap each). The
end terminals of opposite transformer sections are connected to each other through
rectifier diodes. The load and a ballast resistor are tied to transformer secondary
center taps connected in pairs as indicated. This arrangement increases the
efficiency of the unit with respect to the reference voltage source and assures an
abrupt limiting of the output voltage when the linear range of the characteristic is
exceeded (see Fig. 1). Orig. art. has: 1 figure.   [BD]

SUB CODE: 09/ SUBM DATE: 12Mar65/ ATD PRESS: 5032

Card 2/2 FV

S/019/60/000/015/093/143/XX
A152/A026

AUTHORS: Kukush, Yu.M., and Shibayev, A.T.

TITLE: Bed-Plate Rollers on Ball-and-Socket Bearing

PERIODICAL: Byulleten' izobreteniy, 1960, No. 15, p. 20

TEXT: Class 7a, 22_{03}. No. 130474 (627086/22 of March 6, 1959). For the purpose of increasing rolling mill output and stability of supports, the latter incorporate ball-and-socket bearings in combination with conical sleeves and intermediate cylindrical bushings, which take up radial and axial loads and absorb shocks from ejected ingot.

Card 1/1

KUREH, Yu.M.; ORIBAYEV, A.L.

Design of blooming mill roller bearings. Biul. TINTI
no.5:47 '61.
(Roller bearings—Institute)

(MIRA 14:10)

KYUL'OVSKIY, Petko, inzh.; KUKUSHEV, Khristo, inzh.

Determining the optimum dimensions of a transformer. Elektri-
chestvo no.3:43-48 Mr '60.   (MIRA 13:6)

1. Nauchno-issledovatel'skiy institut mashinostroyeniya i
elektropromyshlennosti, Sofiya.
                    (Electric transformers)

KUKUSHEV, Khr., inzh.; SAVOV, G., inzh.

Strengthening of the section of the yoke in the low-powered
mantle type transformers. Mashinostroene 12 no.3:10-16 Mr'63

KIULOVSKI, P. inzh.; GENOV, St. inzh.; KUKUSHEV, Khr. inzh.

The effect of the prices of basic materials on determining the
size of oil transformers. Mashinostroene 10 no.11:30-34 '61.

KUKUSHEV, Khr., inzh.

Optimum dimensioning of the low-power transfe-omers with core-type
magnetic circuit. Mashinostroene 13 no.11:26-32 N '64.

1. Scier'ific Research Institute for the Design, Development,
and Manufacture in Electric Industries.

KUKUSHEV, SHT.

What will you be interested in about the organization of machine-tractor stations in Bulgaria.

p. 531 (MECHANISACE ZEMEDELSTVI) Vol. 7, no. 21, Nov. 1957,
Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,
March 1958

KURUSHEVA, A. P.

Packing for Shipment

Efficient cutting of wrapping fabrics. Tekst. prom., 12, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

COUNTRY   : BULGARIA   H
CATEGORY   : Chemical Technology. Chemical Products and
                Their Uses. Part 2. Ceramics. Glass. Binding*

ABS. JOUR.   : RZKhim., No. 1   1960, No. 1957

AUTHOR   : Simeonov, K.; Kukusheva, H.
INST.   : -
TITLE   : Improved Crackle-Resistant Glazes for White
                Faience Tiles

ORIG. PUB.   : Leka prom-st, 1959, 8, No 3, 25-28

ABSTRACT   : A new glaze which ensures the complete absence
                of crackles on the dull edge and a good white
                color for white faience tiles (WFT) was dis-
                covered. Its composition by weight is: frit
                No 30 minimum 20, borax 13.3, Na-feldspar 28.2,
                silica sand 20.9, marble 3.3, Australian ZrSiO₄
                13.3; to 100 parts by weight of frit are added

                *Materials. Concrete. Glass

CARD: 1/3

COUNTRY
CATEGORY   :

ABS. JOUR.   : RZKhim., No. 1   1960, No. 1957

AUTHOR   :
INST.   :
TITLE   :

ORIG. PUB.   :

ABSTRACT   : 6 parts by weight of kaolin + 0.8 parts by
cont'd   weight of MgSO₄ + 0.15 parts by weight of Co-
                decolorizer. The improved glaze provides, be-
                sides, an economy of the imported raw materials,
                viz.: borax by 5.5% and ZrSiO₄ by 4.7%. The
                temperature of the baking of WFT with improved
                glaze should be 1300-1400°; at a lower tempe-
                rature of baking, in order to obtain a better
                whiteness of WFT, it is necessary to add to

CARD: 2/3

KUKUSHKIN, A.A.

Triped for lowering concrete pipe units. Rats. i izobr. predl. v
strei. no.126:14-16 '55. (MIRA 9:7)
(Pipe, Concrete) (Hoisting machinery)

ZUSMANOVSKIY, S.A., redaktor; KUKUSHKIN, A.A., redaktor; KUCHUMOV,
    V.D., tekhnicheskiy redaktor.

[Microwave magnetrons. Translated from the English] Magnetrony
sentimetrovogo diapazone. Per.s.angliiskogo. Moskva, Izd-vo
"Sovetskoe radio." Vol.2, 1951. 471 p.   (MLRA 8:10)
        (Magnetrons)

ITSKHOKI, Yakov Semenovich; KUKUSHKIN,A.A., redaktor; KOHUZEV, N.N.,
    tekhnicheskiy redaktor.

    [Non-linear radio engineering] Nelineinaia radiotekhnika. Moskva,
    Izd-vo "Sovetskoe radio,"1955. 507 p.   (MLRA 9:1)
       (Radio)

KUKUSHKIN, A. D.   Docent

"A Method for Extensive Abdominal Surgery in Connection with Cancer of the Cervix as Modified by the Author," Akusher i Ginekol., No.4, 1949.

Obstetric. & Gynecol. Clinic, Kuban Med. Inst.

SUDAKOV, S.G.; ALEKSANDROV, T.F.; BULANOV, A.I.; DURNEV, A.I.;
    YELISEYEV, S.V.; ZAKATOV, P.S.; IZOTOV, A.A.; KARLOV, G.M.;
    KUZ'MIN, B.S.; KUKUSHKIN, A.D.; KOLUPAYEV, A.P.; KOZLOVA, Ye.A.;
    LARIN, B.A.; LARIN, D.A.; LARIN, B.A.; LITVINOV, B.A.; MAZAYEV,
    A.V.; PELLINEN, L.P.; PETROV, A.I.; SOLOV'YEV, A.I.; TOMILIN, A.F.;
    URALOV, S.S.; USPENSKIY, M.S.; FOMIN, M.P.; SHISHKIN, V.N.; SHCHEGLOV,
    A.P.; SUDAKOV, S.G., otv. red.; KOMARKOVA, L.M., red. izd-vs; SUNGUROV,
    V.S., tekhn. red.

[Instruction concerning the building-up of a state geodetic network
in the U.S.S.R.] Instruktsiia o postroenii gosudarstvennoi geodezi-
cheskoi seti Soiuza SSR; obiazatel'na dlia vsekh vedomstv i uch-
rezhdenii, proizvodiashchikh gosudarstvennye geodezicheskie seti.
Moskva, Izd-vo geodez. lit-ry, 1961. 459 p.   (MIRA 15:6)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye geodezii i karto-
grafii.
                              (Geodesy)

KUKUSHKIN, A.G.; ZHURENKOV, F.V.

Automatic machinery for making zigzag joint fasteners. Sel'khozmashina no.
(MLRA 6:11)
11:30-31 N '53.
(Goffering machines)

SMIRNOV, Yu.D.; KUKUSHKIN, A.I.

Relationship between the mute strata of the Bashkir anticlinorium
and those in the zones of the Ural-Tau. Mat.VSEGEI.Ob.ser. no.28:
9-18 '60.   (MIRA 14:6)

(Bashkiria--Geology, Stratigraphic)

KUKUSHKIN, A.I.; KOGAN, Ya.M.; SMIRNOV-SERGEYEV, A.M.; SHVARTSMAN, D.A.

Operating methods of determining expected production costs. Tekst.
prom. 14 no.6:15-17 Je '54.   (MLRA 7:7)
    (Textile industry--Costs)

SHVARTSMAN, David Aronovich; POLYAK, T.B.,;retsenzent; KUKUSHKIN, A.I.,
    red.; ARKHANGEL'SKIY, S.S., red. [deceased]; MEDVEDEV, L.Ya.,
    tekhn.red.

[Organization of rhythmic work in the cotton spinning and
weaving industry] Organizatsiia ritmichnoi raboty v khlopchato-
bumazhnom priadil'no-tkatskom proizvodstve. Pod red. A.I.Kukushkina.
Moskva, Gos.nauchno-tekhn..izd-vo lit-ry po legkoi prom., 1959. 174 p.
                                                    (MIRA 12:5)

                    (Cotton manufacture)

IOFFE, Iosif Grigor'yevich, dotsent, kand.ekonom.nauk; MAYZLIN, L.A.,
        dotsent, kand.ekonom.nauk; KUKUSHKIN, A.I., retsenzent;
        MOLCHANOV, M.S., retsenzent; GOLUBEV, N.M., red.; KOGAN, V.V.,
        tekhn.red.

[Economics of the textile industry] Ekonomika tekstil'noi
promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po
legkoi promyshl., 1959. 394 p.   (MIRA 12:12)

1. Zaveduyushchiy kafedroy ekonomiki i organizatsii proizvodstva
Leningradskogo tekstil'nogo instituta imeni S.M.Kirova (for
Kukushkin). 2. Gosplan RSFSR (for Molchanov).
                (Textile industry)

KUKUSHKIN, A. I.

Kukushkin, A. I, Ferodovoy opyt proizvoitsva teploizolatsionnykh rabot v neftyanoy promyshlennosti /Advanced Experience in Thermoinsulation Work in the Oil Industry/ (From the series "Opyt meftyanilov-stroiteley" /"Experience of Oil-Field Construction Workers")/, Gostekhizdat, 3 sheets, illustrated. 1753 67,

The brochure describes advanced experience of stakhanovite thermoinsulation workers, and describes in detail the organization of various steps of insulation work, new mechanisms, and rational methods of carrying out individual operations.

The brochure in intended for foremen and technical engineering workers of construction-assembly organizations and enterprises engaged in thermoinsulation work.

SO: U-6472, 12 Nov 1954

PHASE I BOOK EXPLOITATION   671

Kukushkin, Aleksandr Ivanovich; Boykov, Aleksandr Geogriyevich; Ivanov,
    Anatoliy Nikolayevich

Teploizolyatsionnyye raboty (Heat Insulation) Moscow, Gostoptekhizdat, 1958.
    254 p. 6,000 copies printed.

Ed.: Losev, B. S.; Executive Ed.: Martynova, M. P.; Tech. Ed.: Fedotova, I. G.

PURPOSE: This book is intended for foremen, and engineering and technical
    personnel of concerns dealing with heat insulating problems.

COVERAGE: This book provides general information in popular form on heat
    insulation and the exploitation of heat insulating materials, manufacture of
    these materials, and appropriate equipment. The authors outline principles of
    heat transfer and classify the equipment for heating and refrigerating. The
    capital invested for heat insulating equipment should be recovered by its
    exploitation within one year. Efficiency of proper heat insulating equipment
    varies from 85 to 95 percent. Resonable usage of one ton of insulating

Card 1/4

Heat Insulation

material leads to the economy of 200 tons of rated fuel per year. During the prewar period the Soviet industry manufactured large quantities of friable heat insulating products such as "ASBOTERMIT", "NOVOASBOZURIT", "ASBOSLIUDA" and others. Mastic heat-insulating construction parts were based on the above-mentioned materials. There are two serious disadvantages connected with application of mastic heat-insulating constructional parts, namely: necessity of preheating the equipment to be insulated and the labor involved being 2 to 5 times more than in the case when large formed heat-insulating parts are used. After the war the use of mastic heat-insulating construction parts was sharply reduced and production of slag wool was rapidly developed. This material is more economical and suitable for refrigeration and heat insulation up to +600°C. The book mentions that at the present there is no wide choice of heat insulating materials that can be used in construction processes. Nevertheless, production of heat-insulating raw materials and ready-made products develops rapidly.

Card 2/4

VOLCHEK, I.Z., kand. tekhn. nauk; KUKUSHKIN, A.I.; ZINOV, I.I.

Improving methods for producing vulcanite. Stroi. mat. 5 no.10:14-18
O '59.   (MIRA 13:2)

1.Glavnyy inzhener tresta Montazhtermoizdeliya (for Kukushkin)
2.Glavnyy inzhener Inzenskogo diatomovogo kombinata (for Zinov).
                         (Rubber)

BOROZNIN, A.A.; BLOKH, E.L.; ROMANOV, G.I.; KHRENOV, G.S.; KUKUSHKIN,
    A.I., inzh., red.; TARAYEVA, Ye.K., red.izd-va; MOCHALINA,
    Z.S., tekhn. red.

[Economic effectiveness of the introduction of new techniques in
heat insulating operations]Ekonomicheskaia effektivmost' vnedre-
niia novoi tekhniki v proizvodstvo teploizoliatsionnykh rabot;
opyt tresta Stroitermoizoliatsiia. Moskva, Gosstroiizdat, 1962.
86 p.   (MIRA 16:2)
    (Insulation (Heat))--Technological innovations)

PANIN, A.S., kand.tekhn.nauk; KUKUSHKIN, A.I., inzh.

Technology of the manufacture of foamed diatomaceous products. Stroi. mat. 8 no.5:29-32 My '62.   (MIRA 15:7)
(Insulation (Heat))   (Diatomaceous earth)

KUKUSHKIN, A.M.; BELEVTSEVA, V.S.

Condensation and dehydration of residue from the clarification of
neutralized sewage. Ochis. stoch. vod. no.3:64-71 '62. (MIRA 16:5)
                    (Sewage sludge)

KUKUSHKIN, A.M.

MAKSIMOV, V.P., podpolkovnik meditsinskoy solzhby; KUKUSHKIN, A.M.,
    mayor meditsinskoysluzhby

    Novocaine in skin diseases. Voen.med.zhur. no.12:73 D '56.
        (NOVOCAINE)   (SKIN--DISEASES)   (MIRA 10:3)

KUKUSHKIN, A.M.

Reaction of the skin to streptomycin in epidermophytosis and its diagnostic value. Vest.derm.i ven. 34 no.3:27-29 My-Je '60.

(MIRA 13:10)

(RINGWORM)   (SKIN)   (STREPTOMYCIN)

L 41249-65   EWP(k)/EWT(d)/EWP(h)/EWA(d)/EWP(l)/EWP(v)   Pf-4
ACCESSION NR: AT4042607   S/2563/64/000/233/0059/0068

AUTHOR: Bezhanov, B. N.; Kukushkin, A. P.

TITLE: The determination of pressure losses in the elements of air distributing
devices and the channels of pneumatic hammers

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 233, 1964. Avtomati-
zatsiya i tekhnologiya mashinostroyeniya (Automation and technology of machinery
manufacturing processes), 59-68

TOPIC TAGS: hydraulic device, pneumatic hammer, pressure loss, hydrodynamics,
hydrodynamic flow, hydrodynamic loss

ABSTRACT: Data concerning hydraulic losses within pneumatic systems and mechanisms
are needed for more complete and correct calculations and design of new hydraulic
systems. In conjunction with the "Pnevmatika" factory, which produces pneumatic
hammers, the authors investigated the hammer drills PR-30, PR-18, and PR-25 ex-
perimentally and theoretically (see Molotki buril'nyye pnevmaticheskiye tipa PR-30L
i PR-30LB. Kratkaya instruktsiya po ukhodu i ekspluatatsii. SNKh Leningradskogo
ekonomicheskogo rayona. Zavod "Pnevmatika", p. 8). Pressure losses within sec-

Card 1/2

L 41246-55

ACCESSION NR: AT4044607

tions (as a function of air consumption), coefficient of losses, and coefficients
of air velocity and consumption were all determined from a Bernoulli-type equation
for the stationary air flow. Results are presented in the form of graphs and
tables. Orig. art. has: 12 formulas, 6 figures, and 2 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M. I. Kalinina (Len-
ingrad polytechnic institute)

SUBMITTED: 00   ENCL: 00   SUB CODE: IE, ME

NO REF SOV: 003   OTHER: 000

Card 2/2

L 31600-66   EWT(1)/EEC(k)-2/EWA(h)

ACC NR: AT5028813   SOURCE CODE: UR/2563/65/000/250/0034/0040

4/

AUTHOR: Kukushkin, A.P.; Yelimeleki, I.M.

ORG: Leningrad Polytechnic Institute im. M.I. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: The calculation of filling time of pneumatic systems with small working volumes

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 250, 1965. Avtomatizatsiya i tekhnologiya mashinostroyeniya (Automation and technology of machinery manufacture), 34-40

TOPIC TAGS: pneumatic device, approximation calculation

ABSTRACT: The customary evaluation of the filling time of a pneumatic system consisting of a distributor valve, working cylinder, and connecting air piping is carried out usually by simply adding the volume of the piping to the subpiston volume and thus establishing an overall "dead volume." However, this assumption which simplifies the calculation to a considerable degree but disregards local resistances is justifiable only when the volume of the piping is small compared to the subpiston region. Experiments using a methodology described earlier (B.N. Bezhanov, A.P. Kukushkina, Trudy LPI No 233, Avtomatizatsiya i tekhnologiya mashinostroyeniya, 1964, pp 59-68) showed that while the filling time with an added resistance near the end of the air pipe was close to the time without such a resistance, the filling time with the same added resistance at the input to the pipe increased

Card 1/2

2

I. 14,600-66

ACC NR: AT5028813

by a factor of 1.5. Consequently, the present authors developed a new method of filling time calculation by splitting the volume into a sequence of "concentrated" volumes incorporating a varying degree of resistance. A comparison of the theoretical results calculated following the customary and the new method with the results of experiments showed that the errors were of the order of 80% and 20% for the two theoretical methods, respectively. Orig. art. has: 10 formulas and 3 figures.

SUB CODE: 13, 14 / SUBM DATE: none / ORIG REF: 003

FW

Card 2/2

KUKUSHKIN, A. P.

"A vapor-oil pump for automatic evacuation pumping." Min Higher
Education USSR, Leningrad Polytechnis Inst imeni M. I. Kalinin.
Leningrad, 1956. (Dissertation for the Degree of Candidate in
Technical Sciences).

SO: Knizhnaya letopis', No. 16, 1956

PANARIN, A.P.; Prinimal uchastije KUKUSHKIN, A.P.

Effect of the degree of magnesite powder sintering on the
physicochemical properties of periclase-spinelide brick.
Ogneupory 29 no.10:447-450 '64.   (MIRA 18:7)

1. Gosmetallurgkomitet pri Gosplane SSSR.

TSYNKINA, V.M.; GAODU, A.N.; MARKEVICH, Ye.P.; KUKUSHKIN, A.P.

Testing of synthetic patching powders in the repair of open-
hearth furnace bottoms. Sbor.nauch.trud. UNIIO no.5:202-209 '61.
(MIRA 15:12)

(Open-hearth furnaces—Design and construction)
(Firebrick—Testing)

10(2)

AUTHOR: Kukushkin, A.V.

TITLE: A New Method for Determination of Coefficients of Substance Trans-
fer From a Single Experiment (Novyy metod opredeleniya koeffi-
tsiyentov perenosa veshchestva iz odnogo opyta)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 5, pp 46-54 (USSR)

ABSTRACT: The author proposes a new method for determination of coefficients
of substance transfer for solid and loose materials, based on the
analytical solution of the problem on mass exchange between an un-
bounded plate and a semi-bounded medium. The proposed method
meets the following main requirements: 1. A single experiment
suffices to determine all characteristics of the transfer of sub-
stance (moisture); 2. The material under study does not undergo
any alterations (cutting, etc); 3. Experimentation is rather
simple, and devices suggested can operate under industrial and
field conditions. In the first part of his paper the author for-
mulates mathematically the problem by writing down a system of
differential equations with partial derivatives of mass-exchange
potentials with respect to time and one spatial coordinate x.
Taking into account the boundary conditions the author solves the

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A New Method for Determination of Coefficients of Substance Transfer From a
Single Experiment

system by means of Laplace's transformation method. As a result
of solution, the formulae for the following characteristics of
substance transfer: a (mass-exchange coefficient of potential
conductivity); λ (coefficient of mass conductivity) and c (speci-
fic isothermal mass capacitance). In the second part of the
paper the author describes two devices suggested by him for
experimental determination of the above characteristics. One
of them, pictures in Figure 2, should be used for solid materials,
and the other one, pictures in Figure 3, for loose materials.
The devices contain pickups designed by Vishnevskiy. The mode
of operation of these devices and experimentation technique
are described. In the third part of the paper the author pro-
poses a method of carrying out experiments, and in conclusion
cites the final results of determination of moisture transfer
characteristics for clay from the Nizhniye Kotly (Moscow) deposit.

Card 2/3

A New Method for Determination of Coefficients of Substance Transfer From a
Single Experiment

SOV/170-59-5-7/18

There are 2 diagrams, 1 graph and 2 Soviet references.

ASSOCIATION: Energeticheskiy institut imeni V.I. Lenina (Power Engineering In-
stitute imeni V.I. Lenin), Ivanovo.

Card 3/3

S/170/60/003/02/18/026
B008/B005

AUTHOR: Kukushkin, A. V.

TITLE: A New Method of Determining the Coefficients of Mass Transfer

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 2,
             pp. 90-93

TEXT: The author slightly modifies the theory put forward in Ref. 2 with
respect to a new method of determining the mass transfer coefficients by one
single experiment. A sample is taken to determine the initial moisture of
the material U_0 investigated. As the quantities a'_e, c'_e, λ'_e, and ν'_e for the
standard material are known, the coefficient of the potential conductivity
(potentsialoprovodnost') of the material investigated a' can be found from
the diagram (Fig. 2). The expression

$\lambda' = \lambda'_e K'_e \sqrt{\dfrac{a'}{a'_e}}$ is obtained from the formula for the criterion of the mass

exchange activity K'_e. The criterion K'_e is determined by the derived equation

Card 1/3

A New Method of Determining the Coefficients of Mass Transfer

$$(5): \frac{\Delta U_{max}}{\Delta U_{init}} \approx \frac{K'_{\xi}}{1 + K'_{\xi}} \text{ erfc } \frac{\frac{x}{R} - 1}{2\sqrt{(Fo'_e)_{max}}} - \frac{2K'_{\xi}}{(1 + K'_{\xi})^2} \text{ erfc } \frac{\frac{x}{R} - 1 + 2(K'_a)^{-\frac{1}{2}}}{2\sqrt{(Fo'_e)_{max}}}$$

$\Delta U_{max} = U_{max} - U_c$ and $\Delta U_{init} = U_c - U_c$ (K'_a = criterion of inertia). Special nomograms for the relations between $\Delta\theta_{max}$ and $(Fo'_e)_{max}$, ΔU_{max} and $(Fo'_e)_{max}$ are worked out for higher values of this criterion. Finally, the specific isothermal mass capacity of the material investigated is computed from the formula $c' = \frac{\lambda'}{a'\gamma}$. A device in the form of a hollow cylindrical synthetic glass is suggested to carry out the experiments (Fig. 1). The final results for one of the experiments are given which correspond to the diagrams (Figs. 2 and 3). In spite of certain shortcomings, this method has many advantages such as simplicity, simultaneous determination of all coefficients by one single experiment, relatively quick procedure, and small dimensions of the device. The method is suited for engineers and research workers. Vishnevskiy is mentioned in the paper. There are 3 figures and 4 Soviet references.

Card 2/3

A New Method of Determining the Coefficients of   S/170/60/003/02/18/026
Mass Transfer   B008/B005

ASSOCIATION: Energeticheskiy institut im. V. I. Lenina, g. Ivanovo
              (Institute of Power Engineering imeni V. I. Lenin, City of
              Ivanovo)

Card 3/3

KUKUSHKIN, A.V.

Determining the coefficient of the temperature gradient. Inzh.-
fiz.zhur. no.6:91-93 Je '60.   (MIRA 13:7)

1. Energeticheskiy institut im. V.I.Lenina, g. Ivanovo.
        (Mass transfer)   (Temperature--Measurement)

L 3835-66   ARG/EWT(d)/FBD/FBO/EWT(m)/EWP(w)/EPF(c)/FA/EWP(c)/EWP(v)/T-2/EWP(k)/
            LWP(h)/FCS(k)/EWA(h)/ETC(m)   WW/EM/WE
AM5025577   BOOK EXPLOITATION

                                                        UR/
                                                        355.9
                                                        A49

Aleshkov, M. N. (Candidate of Technical Sciences, Engineer-Colonel); Vyakubov,
   B. R. (Engineer-Colonel); Zhukov, I. I. (Professor, Doctor of Technical
   Sciences, General Major of the I.T.S.); Katkhanov, M. N. (Doctor of Technical
   Sciences, Docent Engineer-Colonel); Kukushkin, D. D. (Candidate of Technical
   Sciences, Colonel); Markov, O. P. (Docent, Candidate of Technical Sciences,
   Engineer-Lieutenant Colonel); Savin, N. V. (Engineer-Colonel); Smirnov, A. D.
   (Engineer-Colonel); Fomin, YU. G. (Candidate of Technical Sciences, Engineer-
   Colonel)

Physical principles of rocket weapons, (Fizicheskiye osnovy raketnogo oruzhiya)
   Moscow, Voyenizdat M-va obor. SSSR, 1965. 463 p. illus., biblio. 12,000
   copies printed.

TOPIC TAGS: rocket, rocket flight, weapon, projected ammunition, jet engine,
   rocket propellant, combustion chamber, engine fuel system, rocket guidance,
   missile ground equipment, rocket engine test, jet propulsion

PURPOSE AND COVERAGE: This book presents the principles of the theory of flight,
   the physical principles of jet propulsion, describes rocket engines and fuels,
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AM5025577

3

and control and guidance systems of various types. It also describes the
working principle of rockets of various types and their basic equipment, and
the designs of ground equipment and the tests of rocket complexes. It also
contains a classification of rocket equipment. The book is intended for
officers connected with the manufacture of rocket equipment, and for students
of military educational institutions. The contents of the book is based on
materials of overt Soviet and foreign publications.

TABLE OF CONTENTS (abridged):

Card 2/3

L 3835-66
AM5025577

Ch. IX. Ground equipment of various purpose rocket complexes — 385
Ch. X. Rocket and rocket complex tests — 407
Ch. XI. Rocket combat units — 427

Bibliography — 459

SUB CODE: GM, WA

NO REF SOV: 035

SUBMITTED: 30Mar65

OTHER: 042

Card 3/3

KUKUSHKIN, D.N.

Economic problems of local industries. Gor.khoz.Mosk. 36
no.12:3-5 D '62.   (MIRA 16:2)

1. Gorodskaya planovaya komissiya g. Moskvy.
                    (Moscow—Industry)

KUKUSHKIN, G   I

N/5
850.11
.K91

Obucheniye i trenirovka motosportsmena (instruction and
training of motorcyclists-sportsmen) Moskva, Gos. izdvo
"Fizkul'tura i Sport" 1951. 219 p. illus., diagrs.,
tables.

KUKUSHKIN, G. M.

32-2-55/60

AUTHOR: None Given

TITLE: Short Communications (Korotkiye soobshcheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958,Vol.24, Nr 2, pp.248-250(USSR)

ABSTRACT: I. A. Aliyev and M. I. Ibragimov (Institute for Physics and
Mathematic: AS Azerbaydzhan SSR,Baku) developed a vacuum furnace,
which permits the smelting of metals and alloys in quartz
crucibles (content 5 ccm) and their casting into vibrating
moulds at a temperature up to 900^{0}C and at a pressure of
10^{-3} mm.
L. P. Karasev and G. M. Kukushkin (All-Union Scientific Re-
search and Design Institute for Chemical Machine-Building)
developed ordinary wire tensiometers for pressure cells. The
cell operates up to 300 atm. and consists of a thin-walled
cylinder, on the operating elements of which two tensiometers
and on the resting part of which two shafts are attached by
means of glue. A casing protects the cylinder against mecha-
nical damage.
Card 1/3   I. P. Anan'in and P. I. Anan'in (Institute of the Physics of Metal,

KUKUSHKIN, I.I., inzh.; GOL'DENTUL, B.A., inzh.

Economic efficiency of operating little-used sidings ("Economic problems of short-haul freight transportation using railroad sidings" [in Polish] by Włodzimierz Patlikowski. Reviewed by I.I. Kukushkin, B.A. Gol'dentul). Vest. TSNII MPS[17] no.3:62-63 My '58.

(MIRA 11:6)

(Poland--Railroads--Freight)

KUKUSHKIN, I.I., inzh.

Problems in the organization of train routing centers in industrial areas. Vest. TSNII MPS 19 no.8:34-38 '60.   (MIRA 13:12)
          (Railroads, Industrial--Making up trains)

KUKUSHKIN, I.I., inzh.

Increasing the turnover capacity of industrial railroad stations.
Zhel.dor.transp. 42 no.10:67-68 O '60.   (MIRA 13:10)
                    (Railroads, Industrial)

VECHERIN, Ya.P., inzh.; KUKUSHKIN, I.I., inzh.; DLUGACH, B.A., kand.tekhn.nauk

Estimating the equipment requirements of loading and unloading units.
Trudy TSNII MPS no. 196:79-108 '60.   (MIRA 14:5)
                    (Loading and unloading)

VECHERIN, Ya.P., inzh.; KUKUSHKIN, I.I., inzh.

Operational requirements for the equipment of industrial railroad
stations. Trudy TSNII MPS no. 196:130-161 '60.   (MIRA 14:5)
                    (Railroads, Industrial)

KUKUSHKIN, I.I.

Industrial railroad transportation. Biul.tekh.-ekon.inform.
no.6:63-67 '61. (MIRA 14:6)
(Railroads)

KUKUSHKIN, I.I., inzh.

Over-all expansion of railroad stations of main and industrial
lines in industrial areas. Vest.TSNII MPS 20 no.5:30-33 '61.

(MIRA 14:8)

(Railroads--Stations)

KUKUSHKIN, I.I., inzh.

Correct way to combine the routing from departure and industrial
points. Zhel. dor. transp. 43 no. 7:43-44 Jl '61.   (MIRA 14:7)
          (Railroads—Making up trains) (Railroads, Industrial)

KUKUSHKIN, I.I., inzh.

Complex expansion of the main line and undustrial transportation.
Zhel.dor.transp. 44 no.7:77-80 Jl '62.   (MIRA 15:8)
                    (Railroads—Freight)

GULEV, Yakov Fedorovich; DERIBAS, Andrey Terent'yevich, kand. tekhn.
    nauk; DOBROSEL'SKAYA, Antonina Filippovna; DRUZHININ, Konstantin
    Fedorovich; KUKUSHKIN, Ivan Ivanovich

[New forms of transportation services for industrial enterprises.]
Novye formy transportnogo obsluzhivaniia promyshlennykh
predpriiatii. Moskva, Transport, 1964. 101p. (Moscow. Vsesoiuznyi
nauchno-issledovatel'skii institut zheleznodorozhnogo transporta.
Trudy, no.281).   (MIRA 17:9)

ODINTSOV, M.M., doktor geol.-min. nauk, otv. red.; PAL'SHIN, G.B.,
kand. geol.-min. nauk, red.; LOGACHEV, N.A., red.;
FINNEKER, Ye.V., red.; GRECHISHCHEV, Ye.K., kand. tekhn.
nauk, red.; ASTRAKHANTSEV, V.I., red.; VOLOGODSKIY, G.P.,
red.; KUKUSHKIN, I.P., red.; FEDOROV, I.P., red.; TIZDEL',
R.R., red.; SIDOVA, N.G., red.; YERMAKOV, V.F., red.;
ASTAF'YEVA, G.A., tekhn. red.; POLYAKOVA, T.V., tekhn. red.

[Bratsk Reservoir; engineering geology of the territory]
Bratskoe vodokhranilishche; inzhenernaia geologiia territorii.
Moskva, Izd-vo AN SSSR, 1963. 274 p.   (MIRA 16:12)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut zemnoy
kory.
    (Bratsk Reservoir region--Engineering geology)

KUKUSHKIN, I.P., inzh.

Experience in preparing the reservoir of the Bratsk Hydroelectric
Power Station. Gidr.stroi. 33 no.10:11-13 O '62.

(MIRA 15:12)

(Bratsk Reservoir)

KUKUSHKIN, L. M.

Kolkhoz imeni Il'icha /The "Il'ich" Collective Farm/. Moskva, Gos. izd-vo sel'khoz. lit-ry. / 1953 /.   136 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 12 March 1954.

KUKUSHKIN, I. M.

Kolkhoz imeni Il'icha /The "Il'ich" Collective Farm/. Moskva, Sel'khozgiz, 1953. 152 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 11 February 1954

VINTER, A.V., akademik; KUKUSHKIN, I.N., inzhener; TRAPEZNIKOV, V.A.;
NIKOLAYEV, A.T., inzhener (Muromtsevo, Vladimirskoy obl.); KUDELIN,
Ya.M. (Muromtsevo, Vladimirskoy obl.); PETROV, I.I., dotsent, kandidat
tekhnicheskikh nauk (Moscow); BADALYANTS, M.G., inzhener; BELICHENKO,
G.M., inzhener; KLAPCHUK, L.D., inzhener; FRANTSUZOV, Ye.M., inzhener;
TAREYEV, B.M., professor, doktor tekhnicheskikh nauk; MAGIDSON, A.O.,
inzhener.

Improving the knowledge of power engineers through correspondence
courses. Remarks on B.M.Tareev's and A.O.Magidson's article. Elek-
trichestvo no.3:76-80 Mr '54.   (MLRA 7:4)

1. Energeticheskiy institut im. Krzhizhanovskogo Akademii nauk SSSR
(for Vinter). 2. Glavnyy energetik Gor'kovskogo avtomobil'nogo
zavoda im. Molotova (for Kukushkin). 3. Institut avtomatiki i tele-
mekhaniki Akademii nauk SSSR (for Trapeznikov). 4. Chlen-korrespon-
dent Akademii nauk SSSR (for Trapeznikov). 5. Leninakanges (for Bada-
lyants). 6. Dnepropetrovskiy institut inzhenerov transporta (for Be-
lichenko). 7. Kurakhovskaya gres (for Klapchuk). 8. Orekhovo-Zuyev-
skaya tets (for Frantsuzov). 9. Vsesoyuznyy zaochnyy energeticheskiy
institut (for Tareyev and Magidson).

KUKUSHKIN, I.V., inzh.

Building underground piping at the Yefremovskiy synthetic rubber plant. Prom.stroi. 42 no.2:43 '65.

(MIRA 18:4)

KUKUSHKIN, L.I.

New semiautomatic machinery for abrasive sharpening and sizing of cutting tools. Torf.prom. 30 no.9:25-26 S '53. (MLRA 6:8)

1. Zavod Ivtorfmash. (Cutting machines)

KUKUSHKIN, L.I., inzhener.

Tool expenditure standardization. Torf.prom. vol. 30 no.11:21-23 N-D '53.
(MLRA 6:11)

1. Zavod Ivtorfmash.   (Machine-shop practice)

KUKUSHKIN, L. I.

USSR/Engineering - Machine Tools

Card 1/1

Author	:	Kukushkin, L. I.
Title	:	Automatization of Refacing and Adjustment of Cutters
Periodical	:	Stan. i Instr. Ed. 1, 35-37, Jan/1954
Abstract	:	Methods for refacing and adjusting cutters are given together with a general description of the following grinding machines: Three-mendrel grinding machine used for refacing cutters, and a two-mendrel machine used for final sharpening of cutters. Drawings.
Institution	:	....
Submitted	:	....

L. I. KUKUSHKIN   SURGICAL EQUIPMENT

"Clips and Instruments for Using Them," by L.I. Kukushkin and P.D. Belyakov, Scientific Research Institute of Experimental Surgical Apparatus and Instruments of the Ministry of Health USSR, Voprosy Neyrokhirurgii, No 3, May-June 1957, pp 55-56.

The ligation of the intracranial vessels in neurosurgical operations presents many well-known difficulties, because the operational field is too small and the material used for ligatures often causes postoperative complications.

Since 1911, the silver clips introduced by Harvey Cushing have been universally used. Recently, clips made from tantalum were also invented because they are less irritating to the tissues than those made of silver. However, medical practitioners were never satisfied with the existing clips and clip-holders.

The Scientific Research Institute of Experimental Surgical Apparatus and Instruments of the Ministry of Health USSR, together with the Institute of Neurosurgery of the Academy of Medical Sciences, have devised new kinds of clips, as well as instruments for using them.

The new clips are of two sizes: 4.5 and 7 mm. They are made of silver wire of rectangular cross section. A new set of clip containers was also introduced. These

are made so as to avoid wedging which, though rare, sometimes occurred with those devised by MacKenzie in 1927.

The new clips, after having passed clinical tests, are now being produced at the Gor'kiy Medical Plant imeni V.I. Lenin.

Kukushkin, L. I., Chekin, V. F., and Fedorov, S. F.

"Methods for measuring cerebrospinal fluid pressure and for the drainage of the ventricles of the brain." Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniya, No. 2, 1961, p. 130
1958

KALININA, T.V.,kand.med.nauk (Moskva, D-57, ul.Baltiyskiy poselok, 13/48,
1-y pod"yezd, komn. 22).; KUKUSHKIN, L.I.,inzh.

Using an apparatus for suturing nerves. Vest.khir. 81
no.11:122-126 N '58.   (MIRA 12:3)

1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy
khirurgicheskoy apparatury i instrumentov (dir. - M.G.Anan'yev).
                  (NERVES--SURGERY)

KUKUSHKIN, L.I.; PETROVA, N.P., kand.med.nauk

Universal vasoneurographic apparatus. Voen.-med.zhur. no.7:
27-32 Jl '59.   (MIRA 12:11)
                    (SUTURES)
                    (NERVOUS SYSTEM surgery)
                    (BLOOD VESSELS surgery)

KUKUSHKIN, L.I.; BURLAKOV, A.I.; KALININA, T.V.

Apparatus for applying an epineural suture by mechanical
means. Med.prom. 13 no.3:44-46 Mr '59.   (MIRA 12:5)

1. Nauchno-issledovatel'skiy institut eksperimental'noy
khirurgicheskoy apparatury i instrumentov.
    (SUTURES) (SURGICAL INSTRUMENTS AND APPARATUS)

LI TIN-MIN' [Li T'ing-min] (Moskva, I-y Baltiyskiy pereulok, 3/25,
        Obshchezhitiye aspirantov AMN SSSR); KUKUSHKIN, L.I.;
        POTEKHINA, L.A.

        Apparatus for applying a caval-pulmonary anastomosis (CPA).
        Grud. khir. 2 no.4:121-124 Jl-Ag '60.   (MIRA 15:6)

        1. Iz Institute grudnoy khirurgii AMN SSSR (dir. - prof.
        S.A. Kolesnikov) Nauchno-issledovatel'skogo instituta eksper-
        imental'noy khirurgicheskoy apparatury i instrumentov (dir.
        M.G. Anan'yev).
                        (SURGICAL INSTRUMENTS AND APPARATUS)
                            (BLOOD VESSELS--SURGERY)

PETROVA, N.P.; KUKUSHKIN, L.L.; POTEKHINA, L.A.; BOGOMOLOVA, O.R.

Apparatus for suturing the large blood vessels and its use. Trudy
NIIEKHAI no.5:45-48 '61.   (MIRA 15:8)

1. Nauchno-issledovatel'skiy institut eksperimental'noy khirurgi-
cheskoy apparatury i instrumentov.
                (SUTURES)   (BLOOD VESSELS--SURGERY)

KUKUSHKIN, L.I.; BRYK, V.Ye.

        Apparatus for suturing the dura mater.   Trudy NIIEKHAI no.5:105-109
'61.   (MIRA 15:8)

        1. Iz Nauchno-issledovatel'skogo instituta eksperimental'noy
khirurgicheskoy apparatury i instrumentov i Moskovskogo oblastnogo
nauchno-issledovatel'skogo klinicheskogo instituta im. M.F.
Vladimirskogo.
                   (SUTUTES)   (DURA MATER--SURGERY)

KUKUSHKIN, L.I.; POTEKHINA, L.A.

Apparatus for suturing large blood vessels. Med. prom. 15
no.7:53-54 Jl '61. (MIRA 15:6)

1. Nauchno-issledovatel'skiy institut eksperimental'noy
khirurgicheskoy apparatury i instrumentov.
(BLOOD VESSELS—SURGERY)
(SUTURES)

ANTOSHINA, N.V.; ASTAF'YEV, G.V.; BABKIN, S.I.; BELAVIN. N.F.;
BELEN'KIY, V.A.; BEREZIN, I.P.; BOBRC. B.S.;
VOLKOV, A.M.; GRITSMAN, Yu.Ya.; KUKUSHKIN, L.I.; PEREPELKIN,
V.P.; PETROVA, N.P.; GESELEVICH, A.M., red.; DEKHTYAR', Ye.G.,
red.

[New surgical apparatus and instruments; a practical manual
for physicians, students of senior courses at medical insti-
tutes and surgical nurses] Novye khirurgicheskie apparaty i
instrumenty; prakticheskoe rukovodstvo dlia vrachei, studen-
tov starshikh kursov meditsinskikh institutov i operatsion-
nykh sester. Moskva, Meditsina, 1964. 253 p.

(MIRA 18:3)

AUTHORS: Kukushkin, L. S. ,   Ratner, A. M.   57-2-22/32

TITLE: On the Problem of the Energy Resolution of Scintillation Count-
             ers. I. (K voprosu ob energeticheskom razreshenii stsintil-
             lyatsionnykh schetchikov. I.)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 2, pp.345-350
             (USSR)

ABSTRACT: In the recording of a monoenergetic beam of γ-quanta the im-
             pulse-distribution at the output of the scintillation counter
             forms a curve whose shape depends 1) on the conditions of
             light-collecting of the scintillator, 2) on the effects con-
             nected with the Compton quantum-scattering and 3) on the fluc-
             tuation-processes in the photomultiplier. These causes of de-
             viation are here investigated jointly for the case of the scin-
             tillators most used - the cylindrical NaJ(Tl)-crystals - in
             combination with various types of photomultipliers. For de-
             termining the influence of the dimensions of the scintillator
             upon their resolving power a calculation of three crystals is
Card 1/2   performed here: Nr 1 - r = 20 mm, h = 60 mm, Nr 2 - r = 30 mm,

On the Problem of the Energy Resolution of Scintillation Counters. I.   57-2-22/32

$h = 30$ mm, Nr 3 - $r = 15$ mm, $h = 15$ mm. Three cases concerning different conditions between the indices of refraction of the crystal, the intermediate layer and the glass of the photo-multiplier are investigated here: 1) $n_{21} = 1$, this is the case of an ideal optical contact between crystal and photomulti-plier, 2) $n_{21} = 1,2$, this is the case of a photomultiplier with a photocathode (applied onto glass). A Vaseline oil with an index of refraction of 1,48 serves as intermediate layer here. 3) $n_{21} = 1,77$ - this is the case which corresponds to a photomultiplier with an internal photocathode. The calcula-tions show that the deviation caused by the light-outlet is represented by a curve which according to its shape is very different from the Gaussian curve and largely contributes to the deviations of the counter. Yu. A. Tsirlin called the authors' attention to the importance of the problems treated here. G. Ye. Zil'berman conducted the work. There are 5 figures and 6 non-Slavic references.

ASSOCIATION: Khar'kov Branch IREA (Khar'kovskiy filial IREA) Inst. Chem. Reaktivov
SUBMITTED: June 28, 1957
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Card 2/2

1. Scintillation counters-Energy resolution   2. Crystals-Refraction

AUTHORS: Ratner, A. M., Kukushkin, L. S.

57-28-5-35/36

TITLE: On the Problem of Energy Resolution of Scintillation
            Counters. II
            (K voprosu ob energeticheskom razreshenii stsintillyat-
            sionnykh schetchikov. II)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5,
            pp. 1121-1125 (USSR)

ABSTRACT: The present paper is a continuation of the work conducted
            by the authors (Reference 1) on the light accumulation in
            scintillators. It is devoted to the investigation of the
            influence of the Compton distribution of γ-quanta in
            crystals and the FEU (photoelectronic multiplier) spread
            on the energy resolution in scintillation counters. Here,
            the case of a collimated γ beam with an energy of 0.661
            MeV (Cs^{137}), which was directed along the axis of cylin-
            drical crystals, was investigated. The size of the cry-
            stals NaJ(Tl) was: 1) $r = 20$ mm, $h = 60$ mm; 2) $r = h =
            30$ mm; 3) $r = h = 15$ mm. Just as in reference 1 the
            first and the third crystal were computed for three values

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of the relative refraction index at the boundary between
the crystal and FEU (photoelectronic multiplier) $n_{21} = 1$,
1.2, 1.77 and the second crystal only for $n_{21} = 1.2$. An
accurate solution of the problem is only possible by com
plicated computations. Therefore an approximate   way of
computation was employed, the so-called Monte Carlo method.
As a control the distribution curves, which were determined
for two beams each consisting of 200 γ-quanta, were com-
pared. It appeared, that the results for all investigated
crystals agree with sufficient accuracy. The numerical re-
sults concerning the distribution curves are compiled in
a table. As a comparison, data on the light accumulation
are given (Reference 1). The table shows, that the Compton
dispersion reduces the spread, in particular in small cry-
stals. In the case, when the dimensions of the crystal are
great in comparison to the length of free passage of the
γ-quanta, the flashes can be regarded as points. The distri-
bution curves of such a crystal can be constructed easily
and immediately by means of the same intensity curves given

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Counters

in reference 1 without employing the Monte Carlo method.
The better resolution of the beam collimated in the di-
rection of the axis can be explained by the fact, that the
flashes are produced primarily in the vicinity of the cry-
stal axis. The spread of light omission, however, is in
this range somewhat less than in the entire circumference
of the crystal. It is obvious, that in case of a not colli-
mated γ-beam striking the upper face the magnitude of
spread must be between the spread of the curves:
$\frac{1}{V_o}\frac{dV}{dl}$ and the curves in figure 1. The authors are indeb-

ted to G. Ye. Zil'berman for his guidance.
There are 3 figures, 1 table and 6 references, 1 of
which is Soviet.

SUBMITTED: June 8, 1957

Card 3/3

1. Scintillation counters--Design

Z/508/60/000/000/014/018
E039/E535

AUTHORS: Ratner A.M. and Kukushkin L.S.

TITLE: On the question of the energy resolution of
              scintillation counters

SOURCE: III. Konference o monokrystalech. Prague, Výzkumný
              ústav pro minerály, 1960, 192-197

TEXT: The nonuniformity of light yield in the volume of a
scintillator is one of the parameters which determines the energy
resolution of scintillation counters. This paper is a continua-
tion of previously published work and is devoted to an examination
of the effect of Compton scattering of γ-quanta in crystals and
the energy resolution of scintillation counters. The case of a
collimated beam of γ-rays of energy 0.661 MeV (Cs^{137}) directed
along the axis of a cylindrical crystal of NaI(Tl) is investigated.
Crystal sizes are: no.1) r = 20 mm, h = 60 mm; no.2) r = h = 30 mm
and no.3) r = h = 15 mm. Crystals no.1 and no.3 are examined for
three values of refractive index, 1; 1.2; 1.77 and no.2 only for
the refractive index 1.2. An accurate estimate of the energy
resolution and distribution entails a cumbersome calculation and

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On the question of the energy ...   Z/508/60/000/000/014/018
                                      E039/E535

therefore the Monte-Carlo method is used. It is shown that good
agreement is obtained between the calculated and experimental
results. The effect of Compton scattering is to reduce the
spread and lower the effect of nonuniformity of the light yield,
particularly in case of the smaller crystals.   If the upper part
of the crystal is cut into the form of a truncated cone without
decreasing the volume there is a significant increase in light
yield and a decrease in the spread due to improved reflection from
the sides of the crystal. For good efficiency the ratio of the
height to the radius should not exceed 0.65.   There are 3 figures.

Card 2/2

KUKUSHKIN, L.S.; NAGORNAYA, L.L.

Note on certain concentration effects in plastic scintillators.
Opt. i spektr. 11 no.3:385-389 S '61.   (MIRA 14:9)
    (Scintillation spectrometry) (Plastics)

KUKUSHKIN, L.S.

Theory of optical transitions in local centers. Fiz. tver. tela
5 no.8:2170-2177 Ag '63.   (MIRA 16:9)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR,
Khar'kov.

(Semiconductors)   (Quantum theory)